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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,453	07/16/2003	Makoto Taniguchi	116602	7702

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EXAMINER	
GONZALEZ, JULIO C	
ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 01/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/619,453	TANIGUCHI, MAKOTO	
	Examiner	Art Unit	
	Julio C. Gonzalez	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,11 and 12* is/are rejected.

7)☒ Claim(s) *3-10 and 13-16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 March 0716* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: in page 8, line 14, there is a typo "temrinanal"; in page 9, line 32, there is a typo "retuned".

Appropriate correction is required.

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Control apparatus for on-vehicle generator that sends power from the battery to the field winding and from the field winding back to the battery.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the storage element disclose in claims 1 and 11 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on

the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 11, the claims disclose that control apparatus provides "the storage element with current flowing through the field winding". It may seem from the claims as if the storage element and the field winding are two separate devices. However, from the specifications (page 9, lines 23-27), it may seem as if the storage element is the field winding. Which one is it? Or is the field winding functioning as a storage element?

In claims 2 and 12, the claim discloses that the current flows through the field winding when the current is supplied to a storage element and the current is "the same in a current flowing direction as the current flowing through the field winding when the power supply provides the field winding with current". It is not clear what is meant by "the same in current flowing direction". Is the current flowing in one direction only? Is the storage element in the same path current direction as the power supply? From figure 3, there are many elements (e.g. transistors, diodes, circuit nodes) that split and change the current direction. How can the current direction be the same from the storage element to the field winding and from the power supply to the field winding?

In order to advance prosecution in the merits, the Prior Art will be applied as best understood by the examiner.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Nowakowski (US 4,516,066).

Nowakowski discloses a control apparatus for a vehicle (column 1, line 2) having a generator (column 1, line 58) with a stator winding 12, a field winding 14 and being driven by an engine (column 1, line 63). Also, it is disclosed that there is a switching element 44 configured to electrically connect and disconnect a current path between the field winding 14 and a power supply (column 3, lines 13, 14; column 2, lines 50-55, 58, 59). Moreover, a storage element 30 is disclosed and a regeneration element 76, 78, 80, 82, 32 (see figure of Nowakowski) configured to provide the storage element 30 with current flowing through the field winding when the switching element 44 is turned off (column 3, lines 25 – 28, 37 – 40; column 3, lines 28 – 35).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nowakowski (4,516,066) in view of Liu (US 5,986,436).

Nowakowski discloses a control apparatus for a vehicle (column 1, line 2) having a generator (column 1, line 58) with a stator winding 12, a field winding 14 and being driven by an engine (column 1, line 63). Also, it is disclosed that there is a switching element 44 configured to electrically connect and disconnect a current path between the field winding 14 and a power supply (column 3, lines 13, 14; column 2, lines 50-55, 58, 59). Moreover, a storage element 30 is disclosed and a regeneration element 76, 78, 80, 82, 32 (see figure of Nowakowski) configured to provide the storage element 30 with current flowing through the field winding when the switching element 44 is turned off (column 3, lines 25 – 28, 37 – 40; column 3, lines 28 – 35).

However, Nowakowski does not disclose that current flowing through the field winding to the storage element is in the same flowing direction as current flowing through the field winding from the power supply to the field winding.

On the other hand, Liu discloses for the purpose of effectively recovering wasted electric power, a field winding 15 and current flowing through the field winding 15, which is supplied to a storage element 20 and the current flowing is in the same direction when the power supply 103 provides current to go through the field winding (see figure 3).

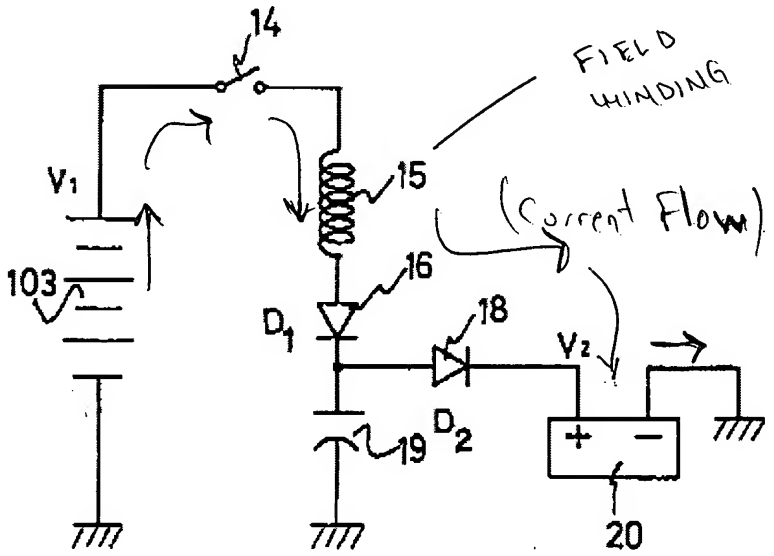


FIG. 3

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design a control apparatus for a vehicle as disclosed by Nowakowski and to modify the invention by having the same current flow through the field winding from a power supply to a storage element for the purpose of effectively recovering wasted electric power as disclosed by Liu.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nowakowski in view of Bluemel et al (US 6,329,797).

Nowakowski discloses a control apparatus for a vehicle (column 1, line 2) having a generator (column 1, line 58) with a stator winding 12, a field winding 14 and being driven by an engine (column 1, line 63). Also, it is disclosed that there is a switching element 44 configured to electrically connect and disconnect a current path between the field winding 14 and a power supply (column 3, lines 13, 14; column 2, lines 50-55, 58, 59). Moreover, a storage element 30 is disclosed and a regeneration element 76, 78, 80, 82, 32 (see figure of Nowakowski) configured to provide the storage element 30 with current flowing through the field winding when the switching element 44 is turned off (column 3, lines 25 – 28, 37 – 40; column 3, lines 28 – 35).

However, Nowakowski does not disclose having a storage element electrically connected to a power supply in parallel.

On the other hand, Bluemel et al discloses for the purpose of reducing eddy current losses, a storage element 24 connected to the power supply 28 in parallel (see figure 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design a control apparatus for a vehicle as disclosed by Nowakowski and to modify the invention by having a storage element connected in parallel to a power supply for the purpose of reducing eddy current losses as disclosed by Bluemel et al.

11. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nowakowski and Bluemel et al as applied to claim 11 above, and further in view of Liu (5,986,436).

The combined control apparatus discloses all of the elements above. However, the combined control apparatus does not disclose that current flowing through the field winding to the storage element is in the same flowing direction as current flowing through the field winding from the power supply to the field winding.

On the other hand, Liu discloses for the purpose of effectively recovering wasted electric power, a field winding 15 and current flowing through the field winding 15, which is supplied to a storage element 20 and the current flowing is in the same direction when the power supply 103 provides current to go through the field winding (see figure 3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined control apparatus as disclosed above and to modify the invention by having the same current flow through the field winding from a power supply to a storage element for the purpose of effectively recovering wasted electric power as disclosed by Liu.

Allowable Subject Matter

12. Claims 3-10 and 13-16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

With respect to claims 3, 7, 13, the prior art fails to disclose that the switching element is provided with a first switch placed to connect to one terminal of the field winding and the positive terminal of the power supply and a second switch placed to connect to the other terminal of the field winding and the negative

terminal of the power supply and the regeneration element is provided with a first diode placed to connect to the one terminal of the field winding and the negative pole terminal of the storage element and a second diode placed to connect to the other terminal of the field winding and the positive pole terminal of the storage element.

With respect to claims 4, 8 and 14, the prior art fails to disclose that the switching element is provided with a first switch placed to connect to one terminal of the field winding and the positive terminal of the power supply and a second switch placed to connect to the other terminal of the field winding and the negative terminal of the power supply and a regeneration element is provided with a third switch placed to connect to the one terminal of the field winding and the negative pole terminal of the storage element and a fourth switch placed to connect to the other terminal of the field winding and the positive pole terminal of the storage element and an on/off control element configured to bring the third and fourth switches into an off state when the first switches are in a on state.

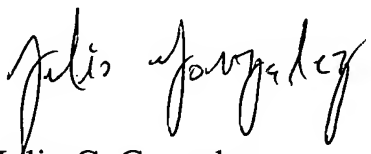
With respect to claims 5, 6, 9, 10, 15 and 16, such claims are dependant on claims 4, 8 and 14.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julio C. Gonzalez whose telephone number is 571-272-2024. The examiner can normally be reached on M-F (8AM-5PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Julio C. Gonzalez
Examiner
Art Unit 2834

Jcg
January 11, 2005